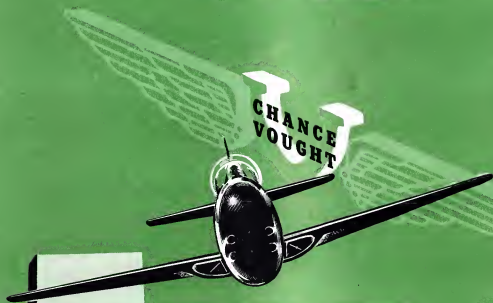


# AVIATION WEEK

A MCGRAW-HILL PUBLICATION

JUNE 21, 1948



## TO THE LONE STAR STATE

Chance Vought Aircraft, designers and builders of famous Navy aircraft for more than 30 years, will soon have a new address—Dallas, Texas. Necessity for the move is directly related to national defense, plus the pressing need for better flying facilities and better flying weather for the development and testing of high-speed jet aircraft.

The transfer of activities will be gradual, extending well into 1949. Meanwhile every possible effort is pledged to achieve efficient operations in the new plant as quickly as possible.

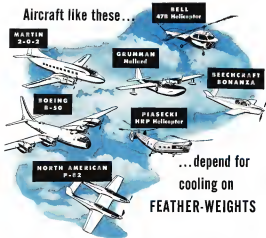


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ONE OF THE FOUR DIVISIONS OF  
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*Forgings of Aluminum, Magnesium, Steel*

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DETROIT, MICHIGAN

## THE AVIATION WEEK

### Report on Procurement

Now that the smoke of battle has temporarily cleared from Capitol Hill it is possible to evaluate some of the results of the current crop of aircraft legislation.

Most important fact to emerge from the six-month controversy over the strength of American air power is the swift passing of approximately two billion dollars into an industry that now has a total backlog of unfilled orders of little more than a billion and a half dollars. Impact of this program over the next two years will mean a 50 per cent increase in industry-wide employment and the end of a black ink year for the industry as a whole since the end of the war.

One member of the program achieved during the current battle on the HHS is a loss back at where air power started when the fiscal 1949 appropriations bill went into the Congressional hopper. President Truman's original budget asked for funds to buy 2801 new planes. Of these the Air Force was to get 978 and the Navy 1823. This was in the face of strong advice from his own air advisers that a 3000 plane annual production rate was necessary to keep the aircraft industry alive and a 5700 plane annual rate was the minimum this country could afford in a period of inter-continental hostility.

### Bipartisan Support

Republican leadership of Congress seemed on the air power issue in a popular race to include the Truman administration. But the real effort to put American air power on a firm basis was a joint effort of both major parties in the shape of Congressional approval on the vital bill. Only handful of left wingers (three in the House and two in the Senate) voted against the measure.

In the face of this tremendous Congressional force the Truman administration speeded the bill to 3185 planes (1171 for the USAF and 1515 for the Navy). Congress boosted that rate to a total of 5252 with the extra 1655 planes all for the Air Force.

Repeat loss of the Truman administration in its efforts to keep the aircraft procurement program alive was the burden of its possible impact in a tight economy that might produce a new inflationary spiral as an election year.

### Russian Theories

Coupled with this was a secondary fact: drafting manpower rather than building planes would be cheaper and a more immediate solution to military needs that would impact the Russian. The theory that only modern tools will impress the Russians is embodied principally in Ambassador to Russia, David South's a Regular Army ground officer. There is considerable evidence to the contrary including the strong testimony of various Ambassadors to Russia, W. Averell Harriman and Air Secretary, Scottington. Both agree that the Russians fear a strong Air Force more and are doing much attempting to outbid the United States in the air.

Primarily as a result of the inflation bugaboo the President rescinded the Congressional aircraft procurement authorization and allowed the secretaries to cancel some \$300,000,000 in Air Corps orders. The net result is a billion of more have now gone out to the industry for 7555 new aircraft. This is doubt, alone the 1800 plane minimum annual production rate cited by the Air Co-ordinating Committee as

necessary to keep the industry both alive and available. Written into the procurement bills was a provision calling for review of the procurement program by the President and Defense Secretary in September and December. After that review the thousands of the procurement funds may be allocated or the program may be cut back, depending largely on the inter-annual situation.

### Survival Program

The wisdom of a cutback, regardless of the international situation is seriously questioned by many observers because the current program itself is the survival itself of the industry that must be kept healthy if the United States wishes to keep the capacity for an emergency expansion of aircraft production. It is this need to assist the industry's enormous survival requirements that was the most important part of order on Capitol Hill this spring. Neither the Air Force 704 Group program nor the Navy 14,350 plane program were really at stake. Both services now have the planes in export to those numerous allies although most of them will become obsolete shortly. What the services really stood to lose was the productive capacity of the industry they are dependent on for modern replacement.

The procurement program as it now stands meets these minimum survival requirements. It does not meet the requirements of an expansion program needed for a real threat of war. If it is not such before present levels the industry will sink back into the depths of depression from which it is now being raised. This real crisis in the industry was the reason for the speed measured in rushing procurement funds through with almost of the regular appropriations bills.

The production lines were running out of order this spring. At Lockheed the P80 line was ready to stop. At Allison the end of all engine production was in sight. At Ford Cleveland's Thompson Products, makers of jet turbine blades and other accessories for the engines, production ended. Under current proposals new orders would not be placed until late fall after the procurement bills were passed in July. By that time skilled workers would have been laid off and productive capacity virtually lost.

### Thank Rewards

Aircraft manufacturers can probably thank Undersecretary of the Air Force, Arthur Brown, for pushing the industry into an unexplored speed on this matter. With Defense Secretary Foran's full support he speeded expansion of the procurement funds in the rush through Congress. Telegraphic letters of interest went out from Wright Field to Air Force contractors less than 24 hours after Foran's retirement suggesting the funds. Navy has already allocated all but 50 of its \$165 million. This unprecedented procurement procurement speed has created the serious crisis that the Air Co-ordinating Committee planned to forestall for the summer.

There are many reasons why the industry is in the present position. Nobody is quite sure just what the Reconstruction Act of 1945 looked on as a procurement transaction really means or how it will work. What the Presidential review will bring down as another big question mark with the uncertainty of next year's Congress from some unknown. But a substantial start has been made on reviving the industry. The bottom has been reached. For the next two years the trend will certainly be upward.

# ADJUSTABLE SHIMS



Tolerances are more easily obtained... factory assembly and service adjustments are simplified by LAMINUM, the "solid" shim that gives for adjustment. It is a precision metal even in divided bands. Laminate even in divided parts, leaving a surface as simply polished, leaving a work as known thickness.

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Laminated Shim Company, Inc.  
Glenbrook, Connecticut

**LAMINUM**  
ONE THIN SHIM THAT  
GIVES FOR  
ADJUSTMENT

## NEWS DIGEST

### DOMESTIC

Wright Field began one of the world's largest reviews after a year of construction. The runway is 18,000 ft long, 160 ft wide and its thickness of up to 25 in. is designed to support the heaviest aircraft now contemplated.

Four American World Airways scheduled its last Convair 440-type Clippers to begin operations later in between Miami and Havana and one roundtrip between Miami and Nassau, cutting flying time approximately 15 minutes from previous DC-4 schedules on both runs.

United Airlines is preparing to "fly to the factory to save you time on home plan," with completion of Detroit into manufacturing, Packard and Kaiser-Frazer. Savings by reducing on-flight and handling are reported enough to cover air fare to Detroit as well as expense home, namely:

A DC-4 converted into a flying stock car, took off from La Guardia Field, N.Y., as a Seaboard and Western Airlines special flight to Milan, Italy, carrying seven bulls, two horses, 50 pigs, 16 white highland chickens, two cocker spaniels, two Scottish terriers and an English setter.

800 UAW CIO members of Ryan International Co., San Diego, Calif., began a wage deadlock strike last week after Ray Kerfous, UAW national executive from Detroit, rejected a company offer.

### FINANCIAL

Lockheed Aircraft Corp. declared \$1.50 per share dividend on 3,875,000 shares of capital stock at record June 15, payable July 1. This is the first dividend to be voted since mid-1946. Company paid \$1 in two installments in 1942-43 and 1947.

United States Plywood Corp. declared 25 cent regular quarterly dividend on common stock to holders of record July 1, payable July 12. Dividend of 25 cents on preferred stock is payable July 1 to holders of record June 15.

### FOREIGN

As India International organized weekly service between Bombay and London using Lockheed Constellation aircraft. The government of India issued special air mail stamps to commemorate the event.

Keep Alaska national weekly service between Anchorage, Dawson, Alaska and Etah with using 74-passenger Viking Viking aircraft.

# The Birdmen's Perch

by Major Al Williams, ALIAS, "TATTERED WING TIPS"

Gulf Aviation Products Manager, Gulf Bldg., Pittsburgh 30, Pa.



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It Free Sticking Valves and Rings and Keeps Them Free Longer!



It took 6 years of experimental work—including over 100,000 hours of test engine running—to bring you Gulfpride Aviation Oil—Series D.

This super lubricant is a fully developed, lightweight oil with maximum resistance and low flash point especially adapted for increasingly opposed engines.

Here's what that means:

No more worry free and safe or not? (And if you've got one that's not working now, Gulfpride Aviation—Series D—will start it, too... save you money on top overhaul!)

More time between overhauls! (According to actual service tests by over 200 operators... save you money on major overhauls!)

Foreign matter cleaned from engine surfaces is kept suspended and in suspension. It is flushed away as oil drains... so you're not near and you save money by replacing fewer parts!

We're not promising the above we're telling you what's actually happened in service tests... telling what Gulfpride Aviation Oil—Series D—will do for your engine!

Remember, though, that Gulfpride Aviation Oil—Series D—is made especially for increasingly opposed engines. For all other types, keep on using Gulf Aviation Oil or Gulfpride Motor.



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SINCE 1913

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The "UnbraKo" Internal Wrenching Bolt (A) and the 100" Flush Head Socket Bolt (B) are practically a "must" in the Aviation Field... they so exactly meet the requirements of precision, tensile and other stringent requirements of Aviation Engineering.

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Regular and Thin

"Wash-Socket-Loss"

A Self Locking, All Metal, One Piece Nut. One Piece, enclosing the locking threads, takes its full share of the load. Available in sizes 1/8 to 2 1/2 in diameter—millions in stock.

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"WENTY SEVEN ANGLE"

The "Went Seven" Angle of the "UnbraKo" Socket Set Screw is a 27 degree angle. This angle is the only one that is not subject to the wear and tear of other angles.

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"UNBRAKO" SOCKET SET SCREW WITH ENGRAVED THREADS



"WENTY SEVEN ANGLE"

The "Went Seven" Angle of the "UnbraKo" Socket Set Screw is a 27 degree angle. This angle is the only one that is not subject to the wear and tear of other angles.

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"UNBRAKO" ENGRAVED SOCKET HEAD CAP SCREW



The "UnbraKo" Engraved Socket Head Cap Screw is a 27 degree angle. This angle is the only one that is not subject to the wear and tear of other angles.

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"WALLBOLL" KEY KIT



WENT SEVEN ANGLE

The "Went Seven" Angle of the "UnbraKo" Socket Set Screw is a 27 degree angle. This angle is the only one that is not subject to the wear and tear of other angles.

Vol. 46, No. 25

**AVIATION  
WEEK**

June 21, 1948



Republic P-47D also right rotates to its on 30 degree machine gun.

## 12 Companies Share Aircraft Program

**USAF, Navy mark funds for 3366 aircraft; \$300 million still left in fiscal 1949 kitty.**

By Robert Hays

Funds to buy 3366 new military aircraft have been allocated by the Air Force and Navy out of their fiscal 1949 procurement funds.

Twelve major aircraft manufacturers will participate in the military production program.

Air Force has allocated \$1,345,505,000 for 2201 aircraft while the Navy plans to spend \$653,615,000 for 1165 new planes. Approximately \$180,000,000 in fiscal 1949 procurement funds voted by Congress have not been allocated. These funds have been temporarily withheld by Defense Secretary Forrestal pending a review of the aircraft procurement program by President Truman in September. Final disposition of the \$180,000,000 is expected to be made after this review is completed.

**North American Plans**—North American Aviation, Inc., of Eaglewood, Calif., assigned from the current procurement but with the largest of the military plans.

Recent North American order was for 414 additional F-4U, 400 wingless jet fighters, bringing the company's total backlog on this plane to 676. This is the plane whose experimental version the XF-46 has already exhibited au-

thoritative performance characteristics (Aviation Week June 14). Production model F-46A will be powered by a General Electric J-47 jet engine offering a 50 percent power increase over the XF-46. New orders are for 313 F-46As and 118 F-46Cs.

North American also got an order for 165 new training planes (F-38) as a

Air Force has ordered three more XS-1 type rocket aircraft plans from Bell Aircraft Corp. of Buffalo, LaGrange, Ga. Howard (Proby) Lang, Air Force Deputy Chief of Staff for Material, announced the new Bell XS-1 order last week and added that the XS-2 also being built for the Air Force by Bell "is still a long way off."

The three new XS-1 models will differ from the original two principally in the fuel system. Pressurized nitrogen fuel system on the early models will be replaced by a more efficient turbo-pump system. Plans are originally designed to take the turbo-pumps but they were not available when the airplanes were completed.

ment of winning a design competition over 12 other manufacturers. Another requirement of \$1.3-49C has been added to North American's current backlog of 115 for the four jet bomber.

Other companies high on the procurement schedule were Grumman Aircraft & Engineering Corp., Lockheed Aircraft Corp. and Douglas Aircraft Co.

Douglas was listed for 356 Navy AD-2 attack planes, 28 F7D twin jet Navy fighters and 28 Air Force C-124s, new version of the C-74.

**Lockheed Delays**—Lockheed will build 457 F-94C, the latest version of the Shooting Star powered by the Allison "406" jet engine; 128 TP-50B, a two-seater jet trainer and 52 advanced model F-7Ns, Navy four engine patrol bombers.

Grumman is scheduled for 517 Navy F4F jet fighters to be powered by Pratt & Whitney built Pratt & Whitney J-40 jet engine. Air Force has ordered 52 SA-16As and the Navy has 100TPs, Grumman's all-weather amphibious and 23 AF-1, patrol engine aircraft planes.

Other service orders include:

**Beech Aircraft Corp.**—132 B-50D and 34 B-50C. Air Secretary Spengler explained this is caused by the fact that the B-50C is actually a later model with superior performance than the B-50D. Spengler indicated that Beech's XB-47 was a more advanced aircraft than those on the 1945 schedule and located locally that the B-47 would go into production with fiscal 1949.

ings. Boeing is already preparing one of its Wichita plants to accommodate a B-47 production line.

• **Norfolk Aircraft Corp.** 38 eight jet Flying Wings (B-45). That is the first Air Force production order for flying type aircraft. Earlier order for 13 to experiment and two jet model Flying Wings with a service test order.

• **Cadillac-Walker Corp.** 25 F-87, two jet all-weather fighters and 30 RF-87A, a photo reconnaissance version of the F-87. Prototype of this plane was built and flown with Westinghouse S4C jet engines but later plans were signed to take two GE J45-35 jet engines. Corbin recently received \$1,300,000 from the Air Force to tool up its Calhoun, Ohio plant for F-87 production to begin in 1949.

• **Republic Aviation Corp.** 499 Thor diesel (F-84C) Air Force jet fighters. • **Finechild Airplane & Engine Corp.** C-1190 for the Air Force and 8 Navy version of the same plane (R-4C). This is the second version of Fairchild's C-82 Packet, now standard equipment for Army troop carrier groups.

• **McDonnell Aircraft Corp.** 179 two jet Banshee (F-101) Navy jet fighters. • **Chase Vought** division of United Aircraft Corp. 31 Navy jet fighters (F-80) and 14 F-101, a redesign, two jet Navy fighter with rocket boost engines. • **Gleim Martin Co.** 47 Mustang (AM-1) a Navy attack plane. • **Skidley Division of United Aircraft** got the only helicopter orders: 19 HHS and 18 HH-43, all for the Navy.

Navy still has 50 contracts for which manufacturers have not been picked. Major manufacturers making bids for the 1949 procurement schedule were: Bell Aircraft, builder of the XS-1, first supersonic aircraft; Convair and Ryan. Symington said the Air Force had reached a decision not to spend any more money on Convair's B-36 project for which 143 of its guns or engine loadings were originally ordered. Any new improvements on the B-36 will come out of funds already authorized for the production program. That the manufacturers made the fewer bombs that will be built.

Symington said that the Convair order was still standing as far as he is concerned. Air Force officials at Dayton recently advised that if military times would come out the production program back to about 60 planes.

• **Transport.** Fight-weather guarantee not set off by the procurement schedule is the hot item being sought by General Motors and Convair as the Air Force order for a two-engine transport. Both the Martin 321 and the Convair 440 have been under consideration for a \$35,000,000 order. Last week Martin appeared to have a performance edge and a sizable minority

## Navy Lockheed P2V



## USAF C-124...



emerge over the Convair-Lockheed entry.

However, funds for this order will have to come from the \$147,800,000 in Air Force procurement money frozen by Ford's ruling or be deflected until the fiscal 1950 appropriation. Symington indicated that all cuts in the Air Force program caused by a de-bidding the \$197,000,000 had been made on the end of production schedule listed in the procurement schedule and would not affect production until the end of the 1950 calendar year.

Bids of the aircraft on the current schedule will be delivered during 1950. Manufacturers not receiving aircraft contracts can count on similar sub-contracting business for sub-assemblies, from prime contractors, according to Symington. That a necessary despite the resultant cost increases, he said to preserve a sufficiently broad material base to meet military emergency needs.

## ... and new details

Here are some details on the new Douglas C-124A, of which the Air Force has ordered 25 in its new postwar program.

Derived from the C-74 design and carrying 1,500 by Pratt and Whitney R-4566-41 Whirlwind engines, the plane will have a gross weight of 175,000 lb and will carry a maximum payload of 50,000 lb, 1200 miles and return without refueling.

Air Force will use it to carry bulk, drums, tanks, field guns. Quail mobile gun will post two dozen for 222 troops and field equipment as hospital transport for 123 litter patients; 57 ambulances and 19 nurses.

Wing span will be 173 ft 4 in., length 137 ft 2 in. and height 45 ft 2 in. Propellers will be Hamilton Standard five-blade.

## Symington Confirms XS-1 Story

By Robert McAllen

ANSWERING Warren's exclusive story on the first supersonic flight, he related correctly last Dec. 23 was officially confirmed by the U. S. Air Force last week.

Air Secretary Stuart Symington held an air month's Air Force talks on ANSWERING Warren's story at a press conference called "The basic reason" of confirming the first piloted supersonic flight by the Bell XS-1, which proved a major step. Subsequent plans held under this program were the Douglas D-558-1 (Skunk) and the D-558-2, Skunk II.

The Bell XS-1 has flown faster than the speed of sound.

"First piloted flight through the transonic zone was made by Capt. Charles Yeager of the U. S. Air Force more than a month ago," Symington said. "The flight was on Oct. 14, 1947."

"All of these supersonic flights have been made in the Air Force's Maine Civil Design Flight Test Center."

Symington emphatically denied ANSWERING Warren's statement that two other pilots, the late Howard Lilly and Herbert H. Hoover, had also flown faster than Mach 1. Both were test pilots for the National Advisory Committee for Aeronautics. Later NACA officials confirmed that Lilly and Hoover had made many supersonic flights.

Air Force followed NACA's announcement with statements that two other Air Force pilots had made supersonic flights in the XS-1. They are Maj. Gus Lusk and Capt. James Earl Goetz, both Wright field test pilots.

"These men," Symington said, "as absolute records will be shared by the Air Force for the supersonic flight, because to do so would require publication of the speeds and altitudes reached. That the Air Force refused to do so grounds of military secrecy."

Symington and the top speed reached by the XS-1 was a "very interesting figure." ANSWERING Warren said in Dec. 12 story that new speed and altitude records were set. Confirmation of the fact that extreme altitudes were reached came from NACA Chief test pilot H. Dwyer, who told a press conference that the unusual altitude at which the supersonic flights were made was a key in their success. San Francisco officials are not yet possible at confidential altitudes, Dwyer said.

• **Joint Program.** "This supersonic flight was made in part of a joint Air Force-Navy-NACA high speed flight research program. Both the Air Force and NACA have a Bell XS-1

plane. Third plane made by Bell has been contributed to keep the other two modern types.

Both the Air Force and NACA planes have suffered minor accidents (mostly groundings due to the high landing speed and narrow landing gear) and minor malfunctions of equipment.

The XS-1 was the first of a series of high speed flight research planes designed by NACA, sponsored by the Air Force and Navy and flown jointly by service and NACA pilots. Subsequent planes built under this program were the Douglas D-558-1 (Skunk) and the D-558-2, Skunk II.

The Air Force is flying an XS-1 in an extended test designed to investigate maximum speed altitudes and structural capabilities of the plane while NACA is conducting a more extensive program to provide detailed data on all phases of transonic flight. The Air Force and NACA are now doing B-29 at Mach 1 on air launching their X-33s.

No Convair C-46—Both the Air Force and NACA specifically denied a New York Mirror Tribune news, quoting a "top Air Force official" as saying the XS-1 will reach an impact of 100

of a Convair rocket fighter that had been brought to the United States late in 1945.

The basic design of the aircraft was completed in the spring of 1944. Contract for the XS-1 was awarded to Bell Aircraft Corp. before the end of the European war in May 1945. Dr. Dwyer said that there was no evidence that Germans had achieved supersonic flight and that Capt. Yeager was unquestionably the first pilot to successfully fly past Mach 1.

• **Air Force Denies-Final Air Force confirmation of the ANSWERING Warren's story.** "Following a recent report by the Department of the Interior, Bureau of Investigation of this magazine and its news sources. Throughout that period the Air Force had first denied, then refused comment on the accuracy of the article. Dr. Dwyer, Chief of the Air Force's Maine Air Force base researching officers, was quoted by the United Press.

"There is no foundation in the material I have seen," he said, "of an advance of this story. It was a big surprise to me because if it had happened I would have known about it. I have seen Charles Wright field and then he'll see there is nothing to it and that if there had been I would have been notified."

The Associated Press also quoted

## Capt. Yeager's Story

Capt. Charles F. Yeager, first pilot to fly faster than the speed of sound, delivered detailed comments on his pioneer supersonic flight in the Bell XS-1 to an Air Force official interview with members of the press. Yeager described his experience as "a hell of a ride." Pressed by newsmen, he admitted that he was "nervous" but that the acceleration through some speed was a "pretty good feeling" because of the knowledge that he was the first man to accomplish the feat.

The flight began at 10:35 a.m. when he was not more than the Boeing B-29 "mother plane" over Maine on Oct. 14, 1947. He would not confirm the flight was made at a steep climb to very high altitude.

After extending his fuel he descended very rapidly back through Mach number 1.0 and glided to a landing at about 600 mph. The landing was about 160 mph and rolled about 35 miles into the desert before coming to a stop.

Shortly before his appearance at the conference, Capt. Yeager was presented with the Air Force Medal of Honor and an Oak Leaf to his service in the distinguished Flying Cross. The Air Medal was also awarded to the late Howard C. Lilly and to Herbert H. Hoover, the two NACA pilots who were quoted in the story of the speed of sound in the XS-1. Air Medals were also awarded to Maj. G. F. Lusk and Capt. J. E. Goetz.

Dr. H. G. Dwyer, NACA Director of Aeronautical Research, present at the conference, stated the XS-1 is a small aircraft in which the speed of sound is felt at high altitude where the air is thin on the structure and small. Beyond it and below it aerial military aircraft of larger size flying at lower altitudes "feel" the speed of sound more greatly than the XS-1. "It is a small aircraft and it is a difficult problem."

Clicker as saying "It sounds to me like another flying saucer story."

Clicker was commanding officer of Maroon at the time of the first super sonic flight in October and during the subsequent flights by both Air Force and NASA test pilots. He still holds the post.

Science Bureau-Symington said in late breaking the Air Force's long silence on the X-15 because of a mutual misunderstanding by Air Gen. Tom Clark, that publication of Aviation Week's Dec. 22 story did not violate any Federal law. Clicker also pointed out that there was no evaluation of any attempt by Aviation Week to aid a foreign government or damage the United States.

Alleging that military disclosure laws does not have the force of law, a postscript outside the military establishment, Symington mentioned that there are certain profitable reasons for its enforcement and asked for continued cooperation from public media.

Clicker's spokeswoman said in turn substantiated by a recent statement by Air Force public relations director Stephens Lee that any further word in the X-15 would have to come from the Justice Department.

## Low Accident Rate

Aircraft manufacturing had the fifth lowest accident frequency record for 1947, according to a report on industrial injury rates issued by the National Safety Council.

## Flight Training Fight Continues In Senate

The voters should be the judge as to whether the flight training is in making will be of use in his present or future business occupation, the Senate Appropriations Committee was told in hearing last week.

Testimony was representative of veterans and aviation groups, urging to "tighten up" a House amendment to the supplemental appropriation bill.

Clarence Cornish, Illinois Association Director, and president of NAMA, told the Senate committee that the rejection of Congress would be accomplished if the amendment read as follows: "Education or training for the purpose of teaching a veteran to fly and related aviation courses shall not be considered vocational or nonvocational when the veteran certifies that he has selected aviation education as training for use in connection with his existing or contemplated business, occupation or profession."

Legion Stand-Thomson Walsh, Chicago member of the American Legion Association and Legislative Committee, told the Senate committee the Legion's stand supporting GI flight training.

Sen. C. W. Brooks (R., Ill.) member of the committee, voiced his support of the proposed revision, and it was then scheduled to be taken up in action in conference. Other aviation spokesmen at the Senate appropriations

hearing included: Capt. Maxwell W. Roberts, Tulsa, president of American Civil Training Society, Air Corps, Civilian Pilot Training; John E. Wilson, Northbrook, Ill., NATA vice president for aviation training.

It was noted that by including the specific provision that the veteran certify his own flight training as occupational training, the amendment would leave the possibility of subverting the flight training program by hostile VA officials.

(For story on earlier House action on amendment, see Sales and Service section, page 37.)

## Hughes-Brewster Feud

The longstanding Hughes-Brewster feud flared into the open again last week.

In a lengthy speech on the Senate floor, Maine's GOP Sen. Owen Roebuck rebuked his role of the highly controversial record of the now defunct Senate War Investigating Committee's probe of Howard Hughes' \$40,000,000 war contracts. The probe resulted all TWA owner Hughes charge that Brewster used his senatorial post to promote Pan Am interests.

Brewster responded by offering three \$100 a week job in an actual with MKD studies.

"That is twice the usual starting salary," he wrote the Maine Senator, "but you are no senator; your salary as an actor has been well demonstrated. Also, you are the perfect type for some parts I have in mind."

## Airline Probe

Investigating subcommittee of the Senate Committee on Expenditures in Executive Departments will launch into hearings on airline "sabotage" after the political recessions.

Chairman Sen. Hiram Fitzgerald (R., Mich.) subcommittee head, told Avia news when his "personal thought" is to hold public hearings. "But we are going to complete a very thorough investigation first," he said.

The subcommittee is tracking down allegations of political influence in CAB route and rate pay decisions. Fitzgerald has already announced committee investigations. Branch Airways' South American route award are being scrutinized.

## Branniff Dispute Settled

An East Dispatchers Association's entry dispute with Branniff Airways was settled following ALTA's appeal to the National Mediation Board. Pinned ages, resulted in a wage-price settlement ranging from \$190 per month for the last year to \$200 for the seventh.



Howard S. Callahan (left), chairman of Post of New York Authority, Thomas K. Frazier, planning board chairman, Governor, and William, chairman of the Mayor's board for the construction of New York City's New International Airport.

## New York Air Show Taking Shape

Exhibitors next week draw for space in 65,000 sq. ft. covered area along runway at new Idlewild field.

With participation by several leading manufacturers already assured, the International Air Exposition at New York, July 31-Aug. 6, has signs of being the first large-scale aviation show in history that year is showing clearly as aviation show that has several appealing features.

• Sponsorship—The City of New York, which is staging the show in conjunction with the celebration of the Golden Anniversary of the formation of Greater New York City, has the first keynote.

• Financing—A total of \$100,000, half from the city, half from the Port of New York, Authority (operator of Idlewild).

• Transportation—Located 40 minutes from the center of New York City by 10-minute subway and 5 to 10-minute bus from the end of the subway line direct to the exposition. Between 300 and 700 buses are available for the shuttle service, and the promise is to run buses

"every few minutes." The parking space will accommodate 12,000 cars. The exposition area will open to the public at 11:30 a. m. and close at 7:00 p. m. One phase of this arrangement is to allow exhibitors time to get set for crowds in the morning without getting up at the break of dawn, and to give them evenings free for association meetings and other trade activities.

• Cost—What it will cost a company exhibit to participate in the six-day show is difficult to figure. Hotel rooms in New York during the exposition period are expected to be readily available, at rates generally standard in any large city. Show officials say that usually the exhibitor would at a show of this type run about 12-15 percent of the 1948 cost of participation.

Exposition officials are claiming it will be largest and most extensive air exposition ever held. It will be opened with the "President's Day" during which President Truman is expected to attend the greatest number of Air Force and Navy planes ever assembled at one spot in peace time. British Navy and Royal Air Force planes will participate, with the RAF showing its job-powered Viscounts for the first time in the U. S.

• Sponsorship—The head of the International Air Exposition is Thomas K. Frazier, lately chairman of the President's Air Policy Commission. He is backed up on the planning board and board of exhibitors by representatives of the aviation industry. A professional show staff is directed by Tom Company and Robert Emerson, director of exhibits.

The exposition is sponsored by the International Show Council, which comprises representatives of the principal segments of the industry. Aircraft Industries Association, while not participating as an organization, has made no objection to individual company activity. Extent of airline participation is unaffected with major airlines still negotiating with the Port Authority for use of Idlewild.

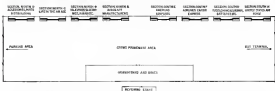


## Mercator Order Increased

New York ordered twelve more Martin F4M-1 Mercator search planes, bringing total quantity to 57. Two prototype XP4M-1s are undergoing flight tests and seven production models are on the Martin assembly line, scheduled for delivery beginning summer,

1949. Delivery on the new order will begin in 1950.

The forty-two craft has a 3,000-mile range using an F4W-Wing Major engine. Active F-13 (high) engine in use of aircraft are used for bursts of speed to close range rapidly after radar contact for heavy land intercept and for interception in combat.



LAYOUT OF SHOW, "World of Flight" exhibit of International Air Show stretches more than 400 ft. along north-south runway.









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## Thick Root Proved In Phantom

Distinctive wing-housing for engines gives aerodynamic, structural benefits.

By Robert McLarrea

The first jet aircraft developed for the U. S. Navy and the first jet plane to enter full squadron service aboard a carrier, the McDonnell F4H Phantom fighter is also unique with its "banded" wing root location for its power plants.

This inherent feature was not an original design goal but the result of dozens of studies of engine location—concentrating the loadings and along the wings to the extreme tip.

The tip position proved advantageous aerodynamically but stability problems persisted by the possibility of single engine operation nullified choice of this location.

**•Air Inlet Considerations**—The wing root air intake proved the most complex problem in the design of the prototype (designated XFD-1) but changed to F4H when Douglas reentered the Navy fighter design field because of the well-known variations in flow at the juncture of an airfoil with an elliptical body.

To meet performance guarantees, Westinghouse had specified that airflow to the F4H (original engine, later F4U) and-flow turboprop should not vary more than five percent across the face of the compressor inlet.

Original XFD-1 inlets featured an asymmetry in plan view between the upper and lower tips, resulting in upward lateral airflow across the duct entrance, with consequent lateral variation in

velocity head across first compressor stage.

Following extensive wind tunnel tests by the National Advisory Committee for Aeronautics on a 1/20th scale model of the XFD-1, duct entrance was revised to these present form with singular success.

Not only did the inlet provide constant velocity head across its face, but it permitted 97 percent mass pressure recovery (a phenomenal figure) and, moreover, was free of any local stagnation at any velocity ratio to be expected in normal operation of craft.

**•Root Design**—The thickened root of the Phantom actually comprises a separate wing. Consisting of an NACA

65 series laminar flow airfoil, the maximum thickness point (45 percent chord from the leading edge) of the root extends in a curved line aft and outboard to the outer panel. This produces the equivalent of a swept wing in this area. In addition, its rigid taper from the broad root chord to the outer panel root chord provides the equivalent of a very low aspect ratio.

This combination of sweep and low aspect ratio is the ideal method of increasing the critical Mach number of a wing, and the F4H wing root actually has a higher critical Mach value than the outer panel, although the root is the equivalent of a 30-percent section thickness.

This pronounced rotation derives from the fact that the upper and lower portions of the power plant section set in less than normal, under flap a single thick one, each exhibiting higher critical Mach value.

**•Greater Span Depth Attached**—More structural advantages resulted from the thickened wing root design, including the inherent simple space for providing greatly increased span depth at the root, where it is most needed.

F4H main span members are heavy, deep assemblies extending between outer panels and across the fuselage, bracing here to compress fuselage frames.

This heavy construction, with its great bending strength, provides such increased wing rigidity that tip deflection is less than half of an equivalent wing with tapered span. And this rigidity serves to increase the structure's natural frequency of vibration, thereby improving anti-shudder resistance.

The thickened root also provides

### McDonnell F4H Basic Data

Span ..... 40 ft. 9 in.  
Length ..... 35 ft. 6 in.  
Height ..... 14 ft. 2 in.  
Span (wings folded) ..... 16 ft. 7 in.  
Height (wings folded) ..... 16 ft. 10 in.  
Empty Weight ..... 6083 lb.  
Normal Gross Weight 18,075 lb.  
Max. Press. Overload 12,035 lb.-Nts. Speed ..... 595 mph @ 16,000 ft.  
Climb (normal) ..... 41,000 ft./min.  
Range (normal) ..... 690 mi.  
Range ( ferry) ..... 1,600 mi.





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A sharp thirty-foot bank of the Yukon River at one end of the field, a high hill on the other and a no-wind condition? That's the situation in which Capt F. Gaffner and wife found them-

selves as they attempted to land on the snow-covered 1500-foot strip at Eagle, Alaska. What happened? Here's the story in Mr. Gaffner's own words:

"The terrain was extremely hard to determine when blanketed with solid clean snow, but I knew I should have been on the ground and kept feeling and feeling for it. It wasn't there! Suddenly that hill loomed up just in front of me. By then my air speed was below fifty, and brother, was I panicky! I knew I couldn't make it, and thought of that beautiful plane stalled out in the treetops. But I gave it full throttle, eased the nose up, and prayed. Just as I skimmed over, I breathed a sigh of relief. I had had faith in an Aeromatic before, but that little episode really sold me. I'd sooner lose my main gear than my Aeromatic."

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also available for numerous foreign models

truly astounding this source of danger. **Engine Fuel Details:** The two West engine 1538-2B (140 WHP) engines each develop 1600 lb static thrust at 15,500 rpm. (The static output, at the 1500 ft, was produced in limited quantity by Pratt & Whitney Div., United Aircraft Corp.) Cruising thrust is obtained at 14,000 rpm, and maximum permissible speed is 17,000 rpm. Conventional 120/120 octane aviation fuel is used to obtain thrust, such fuel stored in tanks as other fuels should aircraft carriers operating elsewhere.

The new engine differs from the original 1550 used in the prototype X2D-1 by the addition of four stages of compression resulting in an increase in static thrust from 1550 to 1600 lb., with an increase in weight of over 180 lb.

The Phantom carries 375 gal of fuel in self-sealing fuel tanks in the fuselage and 291 gal in a large, removable tank under the belly—a total of 675 gal.

The short landing gear provides little clearance for the bottom of the belly tank. Although one of the tank from land has a standard outlet for low height, the back vertical rate of descent of the craft is a major design consideration the also strains automatically, against its extension limitations during carrier operations. Various tanks and shapes of tanks are being developed to solve this problem.

The fuel system is automatic, with fuel being controlled from an empty to a full tank without necessity for pilot's attention. This provides a major development problem, however, for it is difficult for pilot to transfer fuel from one tank to another or to switch to a tank other than the prescribed sequence.

**Electricity Forward:** The Phantom is virtually an all-electric airplane. Landing gear, wing flaps, air brake, wing flapping, and deck lock rotation are accomplished by traction horsepower motor jobs.

Roller aids are hydraulically operated from a simple motor cylinder system.

No control power boost system is used, but ailerons and elevators are equipped with a spring-like action to assist pilot and maintain control system loads.

**Engine Construction, Arrangement:** Structure of the F1H uses 7357 Alclad sheet throughout assembled with machine nonstress riveting.

Fencing is built up in a series of flanges and heavy extruded-aluminum longtruss.

Wing center panels are of simple two-piece construction with pinned flange aluminum alloy ribs and flush riveted 7357 skin plating.

Announced consists of four 50-cil machine guns (with 100 rounds each) mounted in the upper nose.

Gun ports are streamlined fittings projecting from the nose and fuselage in an conventional electric motor and drive in electric.

Announced component is expanded for servicing by raising large door assemblies, and is accessible from the ground.

**Carrier Equipment:** The craft is equipped with complete carrier deck operating equipment. Aircraft hook is mounted in the lower aft fuselage.

Deck catapult launching and umbilical cable fittings are spring-loaded fittings which are flush within the wing and fuselage when not in use and are retracted down and out by deck crew for cable attachment.

A spring-loaded outboard barrier guard is mounted in the upper nose, forward of the windshield. A heavy rubber tailfin is retracted under the roller post to protect the landing in a tailwind landing.

**Tailpipe Gas Advantage:** The Phantom's turbine landing gear has proved ideal for carrier operations—the airplane is driven forward open contact with the deck, a stabilizing tendency, in mind of the nose rising as an conventional turbine gear mounts, the jet is parallel with the wooden deck surface.

then being directed square to with a turbine post and the turbine produces the required clearance between the fully deflected wing tips and the deck-arranging cables with a minimum height of 30 ft.

Main gear units fold inward into the wing lower surface. Nose gear rotates 90 deg upon retraction into the lower forward fuselage to provide clearance for the equipment and radio installations in the nose compartment.

The nose breaks out of the finger type and extend up and down from the wing surface, normal to the airstream.

Production model F1H-1 includes an additional 15-in landing screen forward of the wing to short nose fuel capacity. Because of this increased nose length, the nose and roller seat has been increased in maximum forward extension. The larger the nose, the more the nose difference in external appearance of the two models.

The F1H is now in full service with Navy flight squadrons VF-17A and Marine Light Attack Squadron VMA-118.

The Navy awarded a contract to McDonnell for 180 Phantom IIs at \$4.50 million. The contract was not back to 30 airplanes, and clearly desirable it was augmented by 35 additional planes at a cost of \$6,075,520. The total order for 60 craft has now been completed.



FLYING SIDEKICK

This unique cockpit configuration—"wing shoe"—is now under experimental test at United Technologies, Inc., Fair Haven, Calif. F1H-1 stands with feet in wings on track between two 4-cylinder 63-hp engines during 30 mph propeller. Lateral stability is gained by wing power output of left or right engine through throttle control of right engine "thrust pole." Left hand

pole has throttle for applying power; right hand in both engines for use in descent. For forward-sight balance, pilot from forward or back to top the GAs, and input toward nullification of propeller drift for forward or backward flight. Forward flight, up to the nose, has been limited to approximately 1 ft under thrust because of machine's carrier clearance.

# NEW AIRCRAFT



## Italian 4-Engine Transport in Final Stage

First Berda-Zappata 306 still awaits powerplants and components which must be bought in Britain or U. S.

Prototype of the Italian four-engine transport, B.Z. (Berda Zappata 306)—planned as far back as 1944, with construction started in '46—still awaits acquisition of engine and other aircraft components from abroad for completion.

The craft is a low wing design, with tricycle landing gear and large wheel fairings.

Cabin area is divided into passenger zones approximately 16 ft. wide and 7 1/2 ft. high. Cabin underfloor area is allotted for baggage storage.

Several versions of the plane have been studied—

- Passenger design accommodating 55, 64, 74, and 80
- Stages containing four berths in each of their compartments, plus 37 chairs
- Passenger cargo accommodation 51 people and 5 to 4 tons of freight

All of model's colors in construction for housing the magazine and the flight engineer. Access to engine is afforded through a tunnel in the wing.

All baggage sections house space for hand luggage, toilet, galleys, and pos-

sible loading stairway in the floor.

The craft has been planned for use with Wright Cyclones, Pratt & Whitney Double Wasps, or the Bristol Centaurus. Studies now underway seem to favor the Bristol engine.

### Basic Data—B.Z. 306

Span	155 ft.
Length	118 ft.
Wing area	2,225 sq. ft.
Gross weight	46 tons
Max. speed	142 mph
Cruising speed at 10,000 ft.	141 mph
Max. Range	3,726 mi.



## New Plane Cleaner Cuts Man-Hours

A new product has magnified efficiency of the airplane cleaning function at Trans World Airlines' Kansas City maintenance base, drastically cutting man hours formerly involved.

The plane-cleaning activity complements TWA's well-known conveyor and engine cleaning system for over haul.

Airplane cleaning requires as much as three times the man-hours for a twin-engine aircraft.

Complexity of the usually external cleaning job is reflected by the variety of forms undertaken when taking on paint and lead rivets, heavy and light deposits, water spots from the atmosphere, and a dull scale film requiring most attention.

There is no cleaner capable of scouring all these deposits. Hence, the cleaning operation is divided into several jobs.

First step is a wetdown of the entire exterior with an emulsion cleaner. This is followed by several operations on separate deposits and may require a second emulsion cleaner, a paint stripper application, or use of a polish containing a light abrasive.

This final cleaning is followed by a wet polish coating, which requires one additional man-hour—usually up to 120 man-hours.

TWA is now giving serious thought to a new airplane cleaner which promises somewhat of a radical change in the standard methods previously outlined.

Use of a wet wax polish for airplane finishing has been limited by the fact that and cleaners attack the aluminum coating on the surface of 248T Alclad, which, when destroyed, renders the underlying duct vulnerable to corrosion.

The new product is an acid cleaner containing an inhibitor to prevent this attack on the metal.

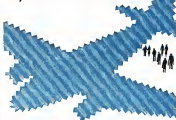
This pioneering new product enables the laborious polishing job obsolete and reduces man hours from 120 to 30-45, depending on dull of area.

The cleaner is applied with a pressure hose, allowed to remain on an area for about one minute, and then removed with a stream of cold water. The unit is then ready for service without further attention.

TWA is making plans for its use following a 300-500 hour service test. Chicago & Southern Airlines is already using it as standard process.

Biggest cleaning job of all, however, is the airplane interior which requires up to 120 man-hours. This tedious expenditure is curtailed by the complexity of the exterior job, requiring extensive hand spotting and individual treatments.

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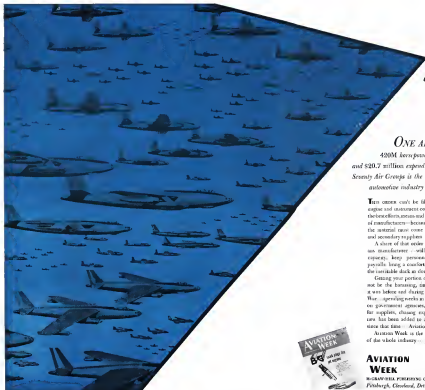
You'll be pleased to know also that Bridgeport Aircraft Upholstery Fabrics are easily and quickly installed. They have special stretching and sewing characteristics that speed up installation by as much as 20% over other types of upholstery material. Write today for free sample swatches and complete information regarding colors and weaves.



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# BIG FEATURE STORY ON NEW UNIFORMS OF REEVES FABRICS

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**Look**  
JULY 6 ISSUE  
ON NEWSSTANDS JUNE 22

Last January Reeves Brothers made history with its "New Industrial Uniform Fashion Show." New Look Magazine with 15,616,000 readers reports on the new uniforms, showing many of the garments in use in a dramatic full-page pictorial article.

Don't miss this annual article. The garments graphically illustrate how better design, using high-quality fabrics, can mean greater efficiency, safety and economy. Their better appearance and longer lasting wear boost employee morale and increase public good will.

More than 500 magazines from across large industries and markets followed the initial showing. Now, many of the garments have passed the "test" rings and are in mass production. Write for the folders, "A New Show on the New Look." Ask for specific details on your own industry. Please address Dept. EL.



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## FINANCIAL

### UAL Seeks More Working Capital

While market conditions are unfavorable, stock sale now necessary to cover purchase of new equipment.

United Air Lines, to bolster its working capital position, shortly will sell an additional 107,015 shares of common stock. Based on current market quotations, it is estimated that investment between \$4,700,000 and \$5,000,000 may be needed in this manner.

This offering is being made through "rights," each common shareholder being entitled to subscribe to one new share for each five now held.

As with all stock offerings of this type a definite dilution of the existing equity occurs. It is probable that United would have preferred to defer public financing at this time and to have avoided more opportunity market circumstances.

However, rather than run the risk of jeopardizing its financial condition, United is paying a relatively high price to obtain necessary additional capital. Early last year United obtained \$40 million in a major financing program and it was estimated that this would be adequate to fund its needs.

► **Consentance** — Estimates indicate that the company will be required to pay during the period between May 31, 1948, and the end of this year an aggregate of approximately \$2,514,000 for the purchase and replacement of flight and maintenance equipment and for the purchase and construction of ground and other facilities. Substantial additional amounts of capital expenditures will be required in 1949 and subsequent years.

As of May 31, 1948, United had contractual obligations for the purchase of flight equipment, payable in 1949, of approximately \$9,500,000. Further, the company estimates that additional expenditures for equipment and facilities will be required in 1949, amounting to about \$1.7 million.

Based on present fuel and passenger rates in effect, United estimates that its net loss for 1948 will be around \$4 million. Depreciation and amortization charges are expected to reach \$11,350,000, thus indicating a cash build-up of about \$9,310,000 on this basis.

► **New Fund Need**—The manner to the current financing may be found in the necessity of the company to raise approximately \$7 million in new funds in order to be in a position to comply with the requirements of its credit

agreement under which its term loans are advanced and under the indenture which its debentures are issued. The current stock sale will exceed the required \$2 million by a substantial margin.

United points out, however, that it recently attained substantial operating gains during the winter months and it will require a portion of each additional funds such as 1949 for working capital and for the same type of requirements which appear this year.

The implications are clear that United will be required to bring additional funds into the company by use of a combination of means. An increase in passenger fares is indicated as one approach. The sale of additional preferred and common shares at the discretion of additional obligations of the company also is discussed. It is not clear, too, that United is looking to CAB as a source for additional relief through an increase in fuel pay.

► **Low-United** sustained a low after all charges of \$5,774,266 for the year ended Dec. 31, 1947. The net loss for the first quarter ended May 31, 1948 totaled \$1,090,514 after all its adjustments. During the period when the DC-6s were grounded, the company made no provision for depreciation charges.

However, on the other hand, consolidated stock charges under similar circumstances. In other words, if depreciation charges were allowed to accumulate for the DC-6s by United during the first quarter, the net loss reported would have been materially increased.

The company attributes this accumulation of losses to the failure of passenger passenger in transportation in such levels previously expected, as caused operating costs not compensated for by increases in rates, decreased annual savings and the subsequent grounding of the DC-6s last November.

No mention in United's registration statement is made of the fact that the share of Route 68 net very will require the raising of new capital.

It is very difficult to decide any one item which may be held responsible for the financial condition of the company. The factors previously indicated are the most fundamental and it is probable that their cumulative effect is presently responsible for the company's present predicament. The latter reasons, however, that led this more purchase not been made by United, it perhaps would not have been forced to do any current financing.

This is all an enterprise, however. At the time CAB consideration of the various transportation routes was not set on a completed basis. In effect, this gave United the duty only to Los Angeles from the end of it so it is not so much sought for years and for which a short time before it paid a high price. With the completion of the current financing, United will have added to its present capital position. As of May 31, 1948, cash loans totaled \$24 million. Such loans will be increased to \$28 million by June 30, 1948, at which time they will be funded at a 2 percent interest rate on a five year basis payable in 20 consecutive equal payments. Of the \$12 million in 10 percent debentures previously added to mortgage companies, \$11,680,000 remain and require annual sinking fund payments until their maturity on Feb. 1, 1957.

► **Stock Data**—There are 94,775 shares of 44 percent preferred stock outstanding. Physically, these shares with convertible into common at the rate of four common for each share preferred. This rate will now be increased somewhat with the manner of additional common. It is to protect the preferred against dilution.

Given effect to the common stock sale, there will be a total of 2,217,705 shares of this price equity outstanding. Also to be considered in this same category are 77,475 shares of common stock which seek on a par with the common stock.

The increasing capital structure of United accentuates the need of the company to develop sufficient earning power to carry this mounting load.

—Sally Altschul

## SALES & SERVICE

### How To Reduce Insurance Costs

Jerome Lederer urges attack on taxing and landing accidents which add up to 63 percent of all claims.

One of the frequent complaints of plane owners about high insurance rates, Jerome Lederer, longtime safety engineer and head of the Flight Safety Foundation, gives the obvious answer and down accidents and the rates will come down. But he adds a not-so-obvious suggestion as how to reduce claims.

Current taxing and landing accidents which together account for 63 percent of all claims for losses, Lederer says after analyzing insurance costs.

► **Responsibility**—Taxiing and crossway landings add 25 percent, so that these two classes of accidents are responsible for 36 percent of all the upper classes claims. Windshields, doors and fire in that order are causes of most of the non-taxing claims.

Lederer says: "CAB reports that about one in every eight airplanes meets with an accident of some kind each year. Nearly percent of these accidents involve a major involved, or replacement of a major assembly."

In addition there are an equal number of aircraft that have accidents that

are not reported to CAB. These are fire losses, windshields, doors and similar nonstructural losses. About one in every four or five major accidents is involved in an accident each year to the tune of about 30 percent of the aircraft value. This produces a pure rate of 1/10th of each plane lost each year.

For a 70 percent loss rate, the claim to 1/7.5 is a rate of 15 percent which roughly is the rate that generally."

► **Accident Analysis**—Lederer analyzes 100 taxing accidents, 100 landing accidents and 100 windshields loss accidents, all of which took place in New England and update New York.

Average cost of the taxing accidents was \$415, of the landing accidents, \$617, and of the windshields accidents, \$517.

► **Taxing**—Of taxing accidents 17 involved running into obstacles, snow or soft ground, 11 were runovers and overruns while 74 were runovers with various objects including near other aircraft and 10 stationary objects. Sixty-one of the taxing accidents involved damage requiring replacement of a re-

pair assembly, or worse, and of these 27 were caused by commercial pilots, and 16 by private pilots.

Analysis of landing accidents showed that the largest group, 15, was due to open and stalled. Oversteering or undershooting the field accounted for 14, and collision with fixed objects, 17. Of 65 accidents requiring replacement of major assembly or worse, 30 were attributed to commercial pilots, and 35 to private pilots.

► **Early Tiedowns**—Of the windshields accidents, 65 resulted from tiedowns in the field, of which 15 were complete windshields, and 15 more crilled for complete overhauls. Only eight of the planes out of the 100 wind-damaged cases studied were in hangars, and three of these reflected only minor damage. Study shows tiedowns ripper broke in 22 cases.

In 16 accidents broken sticks or antennas were pulled out of the ground. There were no cases of aircraft being blown down tiedowns, and stilling other planes.

► **Suggestions**—Recommendations of lead by Lederer to reduce accidents in the categories studied include:

► **Taxing and Landing Accidents**—Discontinue landings or taxing in marginal areas but, if they are necessary, study the field's suitability before attempting a landing. Mark safe spots, ditched, and before use. Do not taxi or fly light planes in strong winds, if available. Turn slowly, using S turns, keeping stall in left forward position when landing downwind and full back when taxiing into wind.

► **Tiedown Wind Accidents**—Use good tie-down rope of 4 in. minimum size. Tiedown stiles should never be used. Tiedowns should be anchored by large heavy concrete blocks, equipped with eyebolt and floating cap, providing stable mooring and flexibility to minimize rope wear. Tiedown ropes should be kept taut. Aircraft with left struts should have chaps on binders use permit recently installed on the struts at the wing.

Lederer states that operators with accident free records or low accident frequency records are good supervisors who check their fields, standards, equipment, equipment and weather forecasts.

He points out that while aviation insurance is showing a pronounced volume of \$25,000,000, approximately double what it was before the war, it does not loom large in the total insurance picture either in dollar volume or in the number of payable claims. With high loss ratios in nearly all lines of insurance and with a pronounced volume that is having the facilities of the available surplus capital, insurance companies are watching their aviation risks and lending them in quantity and quality.

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**FIRST RYAN FACTORY DEALER SESSION**

Tom Olson for Ryan Narine are shown around the table at a round table policy conference with Les Bowman, Texas Distributor, and T. Claude Ryan, president of the company, at the San Diego home plant. Left to right: Right Ryan, vice president, General Fred Williams, Inc. Ft. Worth, John H. Short, partner

in Tucker-Hart Aviation, Dallas, Left: H. Bowman, president of General Aviation, Cliff Hyde, president, Cliff Hyde Flying Service, Houston, Al Taylor, Hyde also representing Ryan, Fred Smith, El Paso, Barry Kinnis, president, Floss Hargrett Corp., Amarillo, Fred Williams, president, Williams Air Activities, Tyler

# On the Northrop FLYING WING\*



**K**erman goes with the latest innovations in airplane design and construction, Pittsburgh Plate Glass Company is continuing an aggressive policy of developing new airplane safety glasses and glazing techniques.

Many modern aircraft, operating successfully under conditions that subject windshields and windows to unprecedented temperatures and pressures, are equipped with safety glass, or laminated transparent plastics, as glass and plastic combinations, developed and produced by Pittsburgh Plate Glass Company.

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\*See U. S. Pat. 2,678,400



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Through this chisel, sledge chisel 400-lb. force hammer of a 3-25 has a direct force five times of the weight of the chisel itself into the glass. "Pittsburgh" manufactures this glass to existing applications or meet the requirements of airplane built in quarters at altitudes up to 65,000 feet.



**AEROBICA SEDAN: POPULAR FOUR-PLACER**

Aerobica's lid has four place bodywork the Sedan, is shown in flight. The Conquest proved 145 hp. with a nose and shock wave vision from the pilot's seat. A nose

series of instruments on the panel and a responsive control system, in addition to the plane's ability to ascend completely under control at speeds in low as 60 mph.

system to proportion between the plane's four place model. Price is \$4995 F.O.B. Cash has a range of 445 miles and a cruising speed of 145 mph.

## Flight Training

**Prospects good for GI program after rescue by House amendment.**

GI flight training may be rescued from pending extinction. Passage in the House of a floor amendment excepting most classes of flight training from classification as "recreational or nonessential" pulled the truth of an earlier amendment which threatened to sink the whole program.

► **Nonessential** — Rep. Karl Stefan (R., Neb.) is credited with the saving amendment which stated "training for the purpose of teaching a citizen to fly in connection with his business or occupation in which he is now engaged is for which he is training shall not be considered recreational or nonessential."

The original amendment had provided that no part of a supplemental appropriation of \$1,973,827,000 allocated for employment benefits to veterans "shall be expended for tuition, fees, or other charges, as for separate allowance, for any course directed or consumed by a veteran as at school, spent to July 1, 1945, and which is determined by the Administrator to be recreational or nonessential or elective."

► **Flexibility** — Stefan stated that his amendment "rescues the GI flight training program but does not limit the hands of the Administrator in stopping payment of important money to train billions during and some other activities."

With the supplemental appropriation bill later likely passed by the House, and due to come up for vote soon by the Senate, almost certainly for any possible changes affecting GI flight training which might be made in the Senate. It appeared probable, however, that the bill as passed by the House would be enacted without further change.

► **Interpretation** — Just how broad a flight training program will be possible under the Stefan amendment is a matter for future interpretation. Stefan was asked by Rep. Carl T. Gatten (R., Neb.) if his amendment would make it possible "for doctors and mechanics and others also want to learn to fly in connection with their business or occupation to do so." Stefan replied that



**NATION'S LARGEST AIR MARKER?**

What is claimed to be the country's largest air marker is this sprawling development atop the West North Administration building in St. Louis. The letters are more than 14 ft high. Architects of this building

is that the photograph was taken from 2000 ft. Direction of air and subject to five airports is shown, in addition to direction of true north, latitude and longitude, and name of city. The post marker is the

work of the St. Louis Chapter of Commerce, Airline Foundation of Northrop, St. Louis, who supplied the idea, the Navy/Naval, and GAA, and individual contributors who furnished the post.

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CABLES



Packard Electric Division, General Motors Corporation, Warren, Ohio

under the new amendment it would. Rep. W. J. Miller (R., Conn.) told the House: "We must stop and realize that men may be taking training and education for federal work as much as men as their managers and the flying of light planes is very helpful and very beneficial to them as their later work, but that is not their business as non-payers today and the language proposed will not help these men, particularly in view of the fact that the [Veterans' Administration] has so clearly indicated its opposition to any kind of flight training."

"Unless this is tied down and it is made absolutely clear that we mean to permit these veterans who are legally entitled to training to take it, I am afraid we will not accomplish our purpose."

Miller offered an amendment which broadened the original House amendment to its final form. It was passed after statements of endorsement by several other congressmen, and with no objection from Rep. Richard Wigglesworth (R., Miss.), chairman of the subcommittee which sponsored the original amendment, as does any other representative.

#### "Super-Fast" Silivairizing

New twist to Locomotive Engine Corp.'s silivairizing process for old air planes is an extra cost "super-fast" power which permits owner of an old airplane to turn it in as an Eagle and get a new metal plane within 45 hrs.

Super-fast service, at an extra charge of \$25 per airplane, is planned for one inventor at service and operation having a considerable distance from Tulsa. They can turn in the old plane and get the replacement on the same day. It is estimated that in most cases the "super-fast" service will take less time than it would take to convert and otherwise a fabric-and-tube airplane at the home base.

The "silivairizing" program as presently described permits that the owner of any fabric airplane with a Cessna 170B, 175 hp engine of dash 3 or 4 or 500 HP series can turn that airplane in at the Locomotive plant at Tulsa and have it replaced, within two, four, twelve, sixteen, twenty, thirty or 45 days, as speed indicator removed and installed in a new all-metal Locomotive airplane. If all three metal air cables, a \$10000 turbine silivairizer is given on the price of the new airplane, and the old plane is scrapped.

Since the program started in March, Locomotive has taken in old Taylorcrafts, Arrows, Cubs, and one piston biplane wing, Locomotive. Plans are being made in the exchange form to be in Colorado, West Virginia, Ohio and Florida.

#### BRIEFING FOR DEALERS & DISTRIBUTORS

**ARMOUR APPOINTMENT**—Appointment of Merrill Armour as liaison officer for immediate relations of CAB is being recognized in Washington as an important step in the restructured field.

Armour, a one-time prosecuting attorney, longtime state court prosecutor, was assistant chief counsel of safety endorsement proceedings for CAB before his new appointment. He has worked with national associations of state aviation officials on mutual aviation endorsement problems for the last two years, and has shown a down-to-earth approach as endorsement.

Troubled at a large portion of aviation endorsement to local government is something that appears inevitable with the growth of aviation. Only alternative would be a large severely federal endorsement system.

Local aviation interests watch out for conflicting and overlapping regulations in various localities, and between state and federal agencies. Armour is in the key advisory spot for policy making in this important area.

**OUTSTANDING PLANE**—Stinson Flying Station Wagon was named the "best standing general plane of 1947" of 12 planes covered in a poll taken by the U. S. 51st Light Transport Association. A 12-page check list was used, reflecting among other things, operation from small fields, timely use, cruising range and speed, passenger comfort, safety, and economy. A bronze plaque from the association was presented to William H. Kierke, Jr., Stinson Division sales manager, at a luncheon following the recent All-Women's Air Show at Miami, Fla.

**ERCOUPE PAIR**—A Stinson twin Europa, which is likely to make a lot of flights into the folds of the sky, is now owned by Millard Davis, of North Carolina Air Service, Atlanta, by joining two 1947 model Europas together at the wingroot and tail. The combination, which looks more like a North American Twin Mustang P-41 than anything else, is being tested by the Thrasher Brothers Air Corps for a novelty act and for an Stinson loan CAA.

The double fuselage aircraft was right outer wing panel of one plane, the left outer wing panel of the other, and is joined where the two inside metal wing ribs meet.

**AVIATION ON THE CAIR**—Pavementing, an Cape Cod, has named John C. Van Andale, a manager and operator of the new airport being completed at the former summer resort colony. Van Andale, a World War II veteran, for the past three years has been operating Cape Cod Flying Service at Cape Cod Airport, Marshfield Mills, Mass., and will continue that operation in addition to his new assignment.

The Pavementing Airport, under construction under terms of the Federal Airport Act, is due to be completed about the end of June. By the construction contract as airport manager and operator, Van Andale hopes to hold expenses of the airport down to a point where it will be of little if any cost to the taxpayer.

**AIRCRAFT RENTAL FORM**—An aircraft rental form which is being circulated by NATA in connection with the Association's booklet of safe and safe operating practices for fixed base operators should have a wholesale effect on "barn-ty" pilots who have to sign it before they can take a plane out.

The center is asked to indicate his trip, his route, purpose of the flight. His passengers if any, and signs an agreement to use the aircraft only for the purpose and mode specified, to permit nobody else to fly the plane, to fly at least 500 ft above the ground except for landings and takeoffs, to land only at established airports, except at permission of emergency, to ground check aircraft before takeoff, to ensure that aircraft is fit to fly, to fly only in daylight and constant weather, to return the plane at an agreed time, weather permitting, and to pay for loss or damage to the plane caused by pilot's negligence.

Form is to be checked by a dispatcher, who stresses that pilot is qualified to make the flight.

**ICE DETECTOR**—A carburetor ice detector for piston engines, announced by Lorchberg Instrument Co., Berkeley, Calif., is designed to flash a neon light on the instrument panel of the plane when carburetor icing starts to warn the pilot to turn on carburetor heat.

Devoted into a pickup probe in the fuel injection system, and an electric circuit. When ice forms on the pickup, the circuit is interrupted and the flashing light starts.

—ALEXANDER MASURELY

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**Melbourne Letters**

# Australia's Aviation Status Growing

Dispersal of British research means establishment of \$100 million worth of projects Down Under.

Events of the past few weeks highlight Australia's growing status as a power pariah with Britain in aviation research, aircraft production and European-wide defense organizations.

These events followed so quickly on the heels of the announcement by President Truman's propaganda program that they must be regarded as part of a concerted move being made by the western powers.

■ **Major Event.** The major event was the meeting here of the British Commonwealth Advisory Aeronautical Research Council. It was the first meeting since the Council's establishment in 1946. Delegates from the United Kingdom, Canada, South Africa, Australia and New Zealand were present.

Except for a routine two-day agenda, announced on the opening day, the proceedings were kept well under wraps.

■ **Research Dispersal.** The Chief Scientist of the British Ministry of Supply, Sir Rex Lockwood, who headed the delegation of British aeronautical brass, did, however, make no bones about saying publicly that the necessity of dispersing British aeronautical research throughout the Empire had now been met.

The bid was lifted sufficiently to let out that the equivalent of \$100 million will be spent in setting up Australia and New Zealand as centers of various kinds, radio and radar research.

■ **"Rocket Range."** Research for what? It is no secret that a "rocket range" is being planned at Mount Eba, in Central Australia. And tests with unguided radio-driven bombs have begun in New Zealand since 1946. They are part of the so-called Canberra Project to which the U.S. contributed much equipment.

The question which Australians would like to have answered now is whether research projects Down Under will remain limited to work which, for geographical or meteorological reasons, cannot be carried out elsewhere. Estimates here to contribute more than these programs—the "wide-open spaces"—in the new defense projects. They want to take an active and crea-

tive part in all phases of aeronautical development.

■ **Industry Shift.** The Commonwealth Minister of Defense, J. J. Dedman, has proposed a plan under which European aeronautical research projects would come to Australia for one or two years. He declared that the Council for Scientific and Industrial Research has built up \$1,165,000 worth of facilities and is now spending \$500,000 a year on staff and experimental work.

Aircraft, the leading Australian aviation enterprise, goes a step further in suggesting that a substantial part of the British aircraft industry be shifted Down Under, to a complete reorganization embracing research, design, development and production.

■ **Wind Tunnel.** That British authorities are seriously trying with the idea is evident from the disclosure that a wind tunnel for speeds up to 1075 mph will be built in Australia. Because of the immense power requirements of such an installation, estimated at 25,000 hp, Tennessee has come under consideration as the site because the United States can provide cheap hydroelectric energy.

Meanwhile, the Empire conflict has put both states on the radar range-processor. After the publicity blitzkrieg of the last eighteen months, you might fancy military spending by now ceased the Central Australian desert. Instead it is announced that "major progress" in the construction work is expected within the next few months. Only a couple of weeks ago the Gakona was awarded the first \$10 million for the project, and that is for preparatory work only.

■ **MILITARY PLANS FIRST?** A British factory representative was seen recently about "airframe interests" who tell Australians that British troops can't deliver the civilian planes they want. The Sydney Sun is authority for the statement that Britain has sent against confidential orders to advise that plane production for defense is again a No. 1 priority in England. That strikes a grim note for Australia's civil airlines. For almost a year they have

not been able to acquire enough dollars out of the Commonwealth Bank to place orders for a single plane in the U.S. And it does not look as if Australia will be selling an dollar very soon.

■ **Disappointment.** American plane exporters who bank on the replenishment of the dollar pool under the Marshall program rate this as far disappointment. There is no hint yet that Australia will be able to support from the U.S. at the risk of dollar overruns or that Britain would see Marshall dollars to cover such availability.

Officials here are talking in terms of five years when discussing the probable duration of the dollar crisis. A lot of things may happen in five years, but at least for the immediate future, the odds prospects are bleak. Australia will have to scrape the bottom of the barrel to pay for its imports of spares, parts and aviation fuel.

## LAMS IN TROUBLE

London Aero Mail Services has had no end of trouble since its debut in Australia. Previously, the old Southern Hemisphere base of the air freight service had been South Africa. The crisis has demoralized converted British Empire bomber, one of the LAMS freighters, and creditors are now trying to raise the \$50,000 credit as security for unpaid debts.

## World News Briefs

### LONDON—

Society of British Aircraft Constructors devoted \$500 to Britain's gliding association to send a team to compete in the 1946 P.A.C. International Club Cup Gliders at Switzerland in July.

Five British manufacturers are engaged in developmental work on eight different types of helicopters. One copy is expected to go into production in October.

### DUBLIN—

Air Eireann passenger traffic for April reached 13,191, or 127 percent over the same period last year. More than 50 percent of the traffic was on the London route.

### STOCKHOLM—

Sweden's Bolinder-Möller Co. plans to use airplanes to prospect for copper, lead, gold and silver in the Arctic Circle. . . . The Sleds plant has received an order from Swedish Airlines for 18 four-engine Swedish jets to be delivered in 1949. Cost will be more than \$6,000,000. The Swedes will be used on domestic and European routes.

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# 5,000,000 Youngsters

## Need Our Help Now

**T**HE bumper wartime crop of babies, about 5,000,000 larger than the population experts expected, is reaching school age.

At school these youngsters should find a good education awaiting them. That is their most cherished American birthright.

But unless something is done quickly, millions of these children will be cheated. They will crowd into classrooms already run on double shifts. They will move in with children who are now sitting two in a single seat. They will read gamma-lensed books mangled by a generation of use by grimy hands.

### I

So the continuing crisis in American education is given a new twist by unexpected pressure on school plant and equipment.

The U.S. birthrate has jumped by leaps and bounds instead of declining in the '40s, as the experts expected it would, the rate climbed from 17.9 per thousand in 1940 to 21.5 in 1945. It jumped to 25.9 in 1947, an increase of 45 percent since 1940. Result: by 1954 elementary school attendance in the United States is expected to jump from 18,280,000 to more than 23,480,000, an increase of about 5,200,000, or more than one-fourth.

The rush has already begun. It will pick up speed next fall.

Now, while this pressure has been building up, our public schools and their equipment have been running down—first through inevitable wartime re-

strict, then because inflation and material and labor shortages made it difficult to catch up.

If we are to give this bumper crop of youngsters the break they deserve—and reach the educational standards the nation needs—we must speedily do a major job of educational rehabilitation and expansion.

### II

Some headway has been made in overcoming the teachers' salary crisis.

Teachers' salaries are improving. Pay problems were driving good teachers away from their posts in droves not long ago. But in the year since the 57th editorial in this column emphasized that crisis, the average teacher's annual salary has increased about \$200—from \$2250 to \$2450.

Year, increases vary enormously from state to state and from town to town. In a few states the average increase has been 50%; in some less than \$200. But, for the nation as a whole, last year's increase put teachers about even in the race with the cost of living. After taxes, their salaries have risen 68%, and the cost of living 67%, since 1939. In terms of pay increases, however, they are not nearly so well off as are industrial workers, whose average weekly wages after taxes have risen 105% since 1939. They are far behind farmers, whose net income is now four times what it was in 1939. And teachers had notoriously low salaries to start with.

A great deal more needs to be done in raising salary standards to put our school system on a firm footing. There are still about 100,000 teachers, nearly 12% of all public school teachers, who hold temporary or emergency credentials. They cannot meet

prevailing standards, and not very severe standards at that, for persons holding their posts.

The salary crisis, however, is easing.

### III

But now comes the new crisis in school buildings and equipment.

We would have been hard put to get our schools back into shape after years of wartime neglect—even without a booming birthrate complicating the problem. Right now, 85% of all public school buildings need major remodeling to remove health and safety hazards.

And we aren't building enough new schools to keep up with current needs, to say nothing of catching up on those we were not able to build during the war years. School construction expenditures for 1948 are estimated at \$275 million—which is less than what was spent in 1939. With building costs twice as high as they were in 1939, that means we aren't even holding our own—we are falling further behind.

And now comes the rush of war babies.

### IV

We must spend at least \$11 billion on new schools and equipment in the next decade.

Public and elementary schools must have \$6.6 billion. Equally important, another \$4.4 billion must be invested in buildings and equipment in our private schools, colleges and universities if they are to meet the demands which will be made upon them. The private school and the privately endowed university are doing their full share and doing it well. The need for them is increasing.

These figures cover only replacement needs for educational plant and equipment. But statistics are a very restricted recorder of this crisis.

You can see it better, I'm sure, in schools not very far from your home. There are schools with leaking roofs and outdoor toilets in our greatest cities. There are schools where students still use lanterns and paraphernalia copyrighted before 1939—books with no

vestiges of World War I, the depression of the 1930's, the Russian Revolution or the rise of the atomists. There are countless schools where modern methods of manual education are completely unknown.

All of these conditions promise to get worse—promptly—as that scheduled 5 million increase in the school population gets rolling.

### V

The Metropolitan Life Insurance Company does not indulge in lurid prose. It says after painstaking study of the educational crisis that:

"Unless definite measures are taken immediately . . . large numbers of American boys and girls will be deprived of an adequate education."

Currently we are deeply concerned about our military defenses. We are taking, and I think rightly, emergency measures to strengthen them. But we must regard our schools as a part of our national defense as vital as are our armed forces. This is particularly true in these times of fifth columns and ideological warfare.

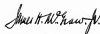
If we are wise, we will raise our sights. We will give the continuing crisis in education the same urgent attention being given the more obvious but no more real crisis in national defense.

Go to the school house in your neighborhood and discover what needs to be done to provide for the rising tide of young Americans. Ask your school board and your school administrators and teachers how you can help them.

That is good citizenship.

That is patriotism.

That is our duty to the coming generation.



Preface, McGraw-Hill Publishing Company, Inc.

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Speed is a prime essential in the modern concept of military maneuver. And speed, too, has to have wings.

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The rugged, hard-working C-119 Packet is now in service with the Troop Carrier Command as the standard transport for troops and guns, trucks and

supplies. Its fitness for this important assignment was demonstrated in practical maneuvers such as Operation Yankin and Exercise Sandtrap.

Now, Fairchild's engineering ingenuity has created the C-119—a new Packet that flies faster and further and carries an even greater load.

In these two airplanes our military minds have found new answers to old problems, and around them have built a new pattern for swift mobility.

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*Division of Fairchild Engine and Airplane Corporation, Hempstead, Maryland*

## AIR TRANSPORT

### Land Hits at Bankers, Controls

ATA head blames military congestion over airports; urges regulation responsibility shift to airlines.

"The military, services, airlines and our regulations by the government are cited in primary cause of most current airline difficulties," Vice Admiral Emory S. Land, president of the Air Transport Association, Land spoke before the recent meeting of the Society of Automotive Engineers at Purdue Univ., Indiana.

Discussing financial difficulties of the airlines, Land said the increased costs of post-war airline operation had disrupted airline production program that were planned in 1945.

► **Banker Trouble**—"Something doesn't seem so evident as the difficulties caused by some of our banking institutions," he said. "Compared to the extent some confidence occasionally seems to the airline industry our banks appear to be working to buy an expensive coffee for the price of the sugar in the tin." They believe in the future of air transportation as though they want to be in control of it.

Land cited records from Washington National Airport that showed 49 percent of all instrument landings there were made by military aircraft and asserted that "much of the recent delay in the operation of congested airports is due to our heaviest burdens in the military service."

He suggested that airlines, airlines be required to land at airports for a period of time regular commercial between "other than this, from 30 to

several hundred civilian passengers."

► **Reduce Regulations**—Land recommended a reduction, simplification and clarification of present government regulations of the air transport industry to ease the present burden of over-regulation.

He also urged a shift in responsibility for regulation from the government to the airlines.

Land took a dim view of any increase over the current use of airline transports, noting that "we might still have a reason from the military and have nothing that they have a small plenty of such rather than just a surplus at our cost."

► **Route Shortage**—"The lack of experience in a steady way to become scheduled, as long as our eyes and ears are working," Land noted. "Much from an economic point of view and from the standpoint of safety it appears to me that the air transport industry might seriously consider these matters before putting too many eggs in one basket."

Both domestic and international airline route structure could be improved by a survey of the situation as proposed by the President's Air Policy Commission, Land said. Some shaping on this would be inevitable in such a survey, he believes, but the improvement in efficiency and airline movement in a many self-sufficient would be worth the trouble.

► **Weather Hazard**—Land said weather

is still the biggest obstacle in achieving the airline goal of "dependability with safety" but that substantial progress was being made toward it. By 1950, from the airline point of view, Land said the implementation of the all-weather service system recommended by the Radio Technical Commission for Aeronautics and endorsed by the Congressional Air Policy Board was the most important recommendation to come from the Board.

Deferring the scheduled airlines against changes that there are a number of, Land said.

With 15 scheduled airlines in the nation how can there be a monopoly? "There is a monopoly then. It is an oligopoly. The lack of the airlines is that there is no such competition, not too little."

► **Foreign Traffic Analyzed**—House-passed preference by term-Atlantic preference for U. S. airlines over foreign air carriers is shown in a report of the Civil Aeronautics Board study in Atlantic air traffic competition.

In 1947 there were 188,256 airborne trans-Atlantic passengers of which 144,709 or 77 percent traveled via the three U. S. lines and the other 43,547 or 23 percent traveled on the five foreign airlines.

The figures are more significant when it is stated that it shows a reversal of the trend travel trend that prevailed for many years when foreign citizenship lines carried approximately 90 percent of trans-Atlantic passengers.

► **Mapleleaf Foreigns**—Analysis shows that the number of trans-Atlantic passengers from foreign citizens, 185,704 in 1947 out of the 188,256 total, and that more than 67 percent of those traveled on the U. S. airlines, while of American citizens, nearly 80 percent chose the U. S. air service.

These statistics also show a reversal in trend trend, M. F. Radwin, vice president of the Air Transport Association, and secretary of Air Traffic Clearance, points out.

Two years earlier, U. S. airlines carried 77 percent of the total revenue for trans-Atlantic trans-Atlantic travel.

A breakdown of trans-Atlantic air passengers between New York and nine major competitive foreign stations during September, 1947, shows two important new sources in international travel, Stockholm, Scotland, and Shannon, Ireland.

There are stations had a total of 15,457 passengers. London was first with 4,114 passengers. Paris was second with 2,661 passengers. Shannon, one of the new ports, was third with 2,024. In fourth place was three cities—Stockholm, Oslo and Copenhagen.



### STRATO-CRUISER TESTS SHIFT TO WICHITA

When strato-cruiser work at Rosing Airplane Co.'s Wichita plant these three strato-cruisers were flown to Wichita, Kan., for completion of this scheduled flight test

program. The double-deck, 50-passenger craft (over the 3-20 in the background) which are undergoing modification by the Boeing Company at Wichita.







**THE "RESERVISOR,"** American Airlines' electronic device, was developed by AA personnel after the war. Operated by push buttons, the unit gives space availability on any one of 1600 flights for 30 days in advance.



**THE INTELLEX,** International Telephone & Telegraph Corp.'s electromechanical "brain," is a streamlined unit designed to handle requests for space as a matter of seconds. Bookings are recorded and insured automatically.

## Untangling Reservation Red Tape

The "Intellex," I T & T's electromechanical unit, is newest device to be used for speeding airline reservations.

Airlines are trying to keep pace with the steady climb in passenger traffic by automating reservation services passed to the growing demand for space.

Speedy operations and minimization of errors are what they strive for. Most lines feel their present systems meet their own needs present traffic conditions. But they are always on the look out for possibly better methods to handle what they hope will be a traffic increase in the future.

► **"Intellex"**—International Telephone and Telegraph Corp. plans to have such a better method in a complex electromechanical unit called the "Intellex." Put together from standard telephone parts, the device is located at the center of an airline's reservation system. It receives and stores space information. Travel offices through out the airline's network are connected to it by interpreting machines, which feed requests for space to the unit. When a booking (and going or standing) is requested, the Intellex sends automatic checks available space and sends back an answer, offering booking on an alternative flight if space on the

desired flight is closed. Office in parts may also be integrated to the Intellex. Code-operators follow the airline to turn the message over to a special operator who handles off-line space.

It is also possible for any person within the system to learn from the Intellex the number of seats sold or available on any leg of any flight at any time. Provision is made, too, for a "broadcast answer," whereby the customer wants all systems processed and automatically that a given flight has been sold out is in approaching that stage.

► **"Reservisor"**—As a contrast to I T & T's automatic mechanism is American Airlines' "reservisor," an electronic device operated directly by push button. Upon a request for space, the reservisor agent passes a stream of buttons, representing the date and flight number on a miniature keyboard. A master control board determines the correct answer, transmits it back to the keyboard, and the agent reads the answer by means of the flashing lights on the board.

American has a reservisor on its Bos-

ton office, and plans to make similar installations throughout its network. ► **"One Call Does It All"**—Eastern Air Lines' "one-call-does-it-all" setup is series of electromechanical devices. The entire system is made up of a series of manual operations. A space advisory board lists the availability of space and indicates whether to put a ticket agent will have to suggest that space from the terminal control offices located at office New York, Miami, Atlanta, or Chicago. These offices control space in a predetermined number of flights that go through their territory.

► **"Speed Reservation"**—Under United Air Lines' "speed reservation system" (American, West, May 24), ticket agents sell space on given type until flights are completely booked, at which time, the Denver center—where all stops on United's system are controlled—sends out a "stop-sale" message. As soon as seat sales are made in this center, they are reported to Denver by private telephone or teletype lines.

► **"Telexline"**—Trans World Airlines' "Telexline" system hinges upon the main control point at Kansas City, where master charts on all flights are maintained. Kansas City feeds out the status of flights to control boards located at each of TWA's local offices. Flashing lights on the control board indicate space availability to a master board agent. If a white light is signaled, the agent may confirm space avail-

ability. Red indicates that a flight is sold out.

Most of these systems have been developed by trial and error methods and have expanded as the airlines themselves expanded. I T & T's "Intellex" claims to offer a uniform system which is usable by all airlines. The Intellex is so devised that any number of airlines using it could plan to have their separate networks interconnect.

## Certificate Extension Sought by Feeders

The feeders are pressing bids for a longer lease on CAB.

Pioneer Air Lines, the oldest short haul carrier, is asking a permanent operating certificate to replace the temporary franchise which expires in November, 1949. And CAB has submitted investigations to determine whether two Rocky Mountain feeders' certificates should be extended for about a year.

► **Schedule Extension**—Active since August, 1945, Pioneer told CAB it is providing an efficient service contributing to the sound development of domestic air transportation and that it has demonstrated a "sustaining tendency" to rely on the government for aid pay subsidy.

"Continued operation under a temporary certificate presents many difficulties, and they become more acute and more critical as the period of the temporary franchise draws to a close," Pioneer declared. "The high cost and cost of providing service, the high rate of change in operating conditions, the difficulty of attracting and holding competent personnel, the question of the scale of future advertising and promotional programs are but a few of the more expensive items confronting us. April 30th threatens to be a simple solution under a permanent certificate."

Pioneer and the 24 other airlines have spent considerable money improving their support facilities and are entitled to know as soon as possible if CAB opinion can be so combined or abandoned. Other feeders are expected to apply for permanent certificates in the near future.

► **Certificate Extension**—Challenger Airlines and Monarch Air Lines are the main whose certificates can be extended for a year until a permanent CAB investigation. Without extension, both carriers would expire May 31, 1949.

Actual operations by Challenger did not begin until May 1945, although its certificate (SL 100440) was issued in March, 1946. That, without an extension, Challenger would be

active only a year and ten months under its present three-year franchise. Monarch began service in November, 1946.

Meanwhile, CAB members are making personal informal inspections of feeder operations. A trip by Board Member Harold A. Board last month covered Monarch, Challenger, Pioneer and Trans-Texas Airways, as well as Los Angeles Airways' helicopter operation.

## PICTURE CREDITS

Illustrations: Brown—10; Ross-Pitt—11 (top); KRM—12 (top).

## CAB SCHEDULE

May 22—Hearings on PWA-Monarch equipment interchange agreement. (Docket 1171.)

June 10—Agreements, withdrawal petition to PWA to PWA to withdraw the (Docket 1091.)

June 10—Five-hour conference, representation of Trans-Atlantic Airways, Inc., owner of Trans-Atlantic. (Docket 1014.)

June 10—Hearings on PWA-Monarch Airways' Pacific certificate withdrawal case. (Docket 1014, at 81.)

June 10—Hearings on Pacific Airways' bid to sell of PWA, American Airlines, Monarch Air, Trans-Atlantic. (Docket 1014.)

June 10—Hearings on National Airlines' entry certificate case. (Docket 1011.)

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## Congressional Medal for Yeager

Air Force Captain Charles E. Yeager was the first American—probably the first man anywhere—to exceed the speed of sound in flight and live to be able to tell about it.

We believe it was the greatest achievement in aviation since the Wright's first flight.

Not even our most distinguished aviators could foretell the effects on plane or pilot of the first sonic flight. One of Britain's greatest pilots was killed when his high speed plane disintegrated at what may have been sonic speed.



Yeager

Pilot risk was considered so high that another research pilot, well healed and well published from his public writings about earlier flights, had demanded fantastic compensation for the critical stages of the Bell XS-1 speed tests.

So a twenty-five year old Air Force pilot, on a captain's regular flight pay, volunteered. He already had behind him 15 months as a fighter pilot in the Eighth Air Force. He had been shot down and then struggled out of France by the underground.

His colonial appeals to be permitted to fly again in the European Theater finally were granted. As Frederick Graham reported in the New York Times, it had been an indefinite rule that pilots shot down over enemy territory and struggled out would not be permitted to fly again in the same theater. This was to prevent the Germans from learning secrets of the underground from pilots they captured. Yet Yeager persisted until he was permitted to rejoin the Eighth and wound up his combat career with 15 German planes to his credit.

So this man's war was over, and he had earned a peaceful life with his family. That is the background of the man who took on the biggest flying job his country had, and he led it. No special honor demands, no writing women, no movie rights, no talk-before or afterward.

Captain Yeager already has been awarded the Mackay Trophy and as Oak Leaf Cluster to his DFC. Well and good. He deserves every special mention award he will and should receive.

But we join others in availing us in urging nothing less than the Congressional Medal of Honor for Charles Yeager. It is the least the United States can do in recognition of an achievement whose importance will continue to increase with the years.

## Preserve the Original XS-1

The original Bell XS-1 which first conquered supersonic flight with Capt. Charles Yeager at the controls should be preserved for posterity in the country's haven for its relics of history, the Smithsonian in Washington.

Wilder and Osvelt Wright's original flying machine will be returned soon to this country with appropriate ceremonies, and placed on permanent display. The XS-1 marks the end of a brilliant era of flight opened by the Wrights. It is an historic symbol of America's technological accomplishment and a forerunner of countless speeds to come.

Since modified models of the XS-1 are on order, we hope the Air Force will spare this particular ship from further tests, and risk of irreparable damage. How about at Secretary Springfield?

## Closed Book

Air Force Secretary Symington has verified Associate Wren's story of last December that the Bell XS-1 had exceeded the speed of sound. The story was proven accurate right down to the names of the first three pilots who accomplished the feat.

More important, the Americans' people know that supersonic flight is a reality, no more mystery, no more beating about the bush. And our British friends who were skeptical of Associate Wren's original story now must concede that the Americans have "done it." As for the Russians, we doubt if the last lessoned say their respect for American genius and power. What else do they respect more?

So, after months of tapped phones, interviews with Military Intelligence, Naval Intelligence, and FBI agents, we close the book on the XS-1 supersonic story with no hard feelings. No publication with its salt will shy from fighting for what it thinks is right. But after the light is over, pointing is pretty small.

We shook hands with Mr. Symington weeks ago and Air Force-Armstrong Wren's relatives were never better. The XS-1 controversy is over.

ROBERT H. WOOD



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## CEILING ZERO...RECEPTION UNLIMITED

Antenna fittings insulated with Du Pont polythene cut precipitation static as much as 90%



Above is a typical example of how polythene-insulated fittings are installed in an Antenna-Battery Antenna System. Simple design makes these fittings easy to handle, quick to install, with no special training required. Because of this, the system's maintenance and repair are simple. The polythene is so tough that it is not damaged by the roughness of the antenna element, and it is not damaged by the roughness of the antenna element, and it is not damaged by the roughness of the antenna element.

Even in the worst of weather, pilots now can count on clear-weather radio reception, thanks to antenna fittings insulated with Du Pont polythene. With these fittings, new antenna systems control up to 90% of static from such sources as charged thunder clouds, sun, dust, and snow and thus help to increase a serious hazard to safety.

High dielectric strength and moisture-resistance makes Du Pont polythene an excellent material for the job. These polythene-insulated antenna fittings resist a 200-kilovolt stress even after repeated aging cycles over a temperature range of -50° to 120°F. And tough, resilient polythene withstands mechanical vibration and rough treatment. Light in weight, capable of being molded with precision, Du Pont polythene is right from every angle.

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Antenna fittings manufactured by Du Pont Plastics, Inc., Newark, N. J., are available in quantities upon request to Du Pont, Inc., Newark, N. J.

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# Skyhook

These two General Electric technicians are preparing the "Skyhook" for a whirl. The Skyhook is a jet-propelled helicopter blade—a project for the U.S. Air Force that has been underway for more than a year at the G-E Flight Test Center in Schenectady, in co-operation with our Aircraft Gas Turbine Divisions in Lynn, Mass. The all-steel blade is located, for testing purposes, in the center of a bowl-pit, 150 feet in diameter and 13 feet deep.

This jet-helicopter development is one of the first of its kind, and unique in size and design... another "first" for General Electric.

We invite you to take advantage of our background and experience. Let our design and production engineers help you with your aircraft equipment problems. In research, development and production of components for aircraft, G.E. leads the way. For more information on General Electric products and their applications, call our nearest sales office, or write Apparatus Department, General Electric Company, Schenectady 5, N. Y.



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